Checking Signal Status

This section describes how to use the CTS850 to check signal status. The CTS850 SDH/PDH Test Set continuously monitors the input signal for alarms, errors, and failures and provides indicators for the current signal status as well as indicating the history of the signal status.

Viewing Signal Structure

The quickest way to view the structure of a signal is to use AUTOSCAN. AUTOSCAN analyzes the input signal and once a signal is found, the CTS850 synchronizes with the signal and displays the structure of the signal.

To view signal structure using AUTOSCAN:

1. Connect a signal to the receiver input.

2. If a test is running, stop the test by pressing **START/STOP**.

3. Press the **AUTOSCAN** front-panel button.

While AUTOSCAN is running, several messages appear in the display. While the CTS850 searches for a signal it displays the message: Please wait, autosetting to received signal. The CTS850 scans all line rates and all receiver input connectors until it finds a valid SDH or PDH signal. When the CTS850 finds a valid signal, the instrument displays the message: Autosetting to received signal. If a signal is not found, a message to that effect is displayed.

When the AUTOSCAN finishes, the CTS850 displays the signal structure in graphical form (see Figure 3 22). Use the knob to scroll through the different active channels.
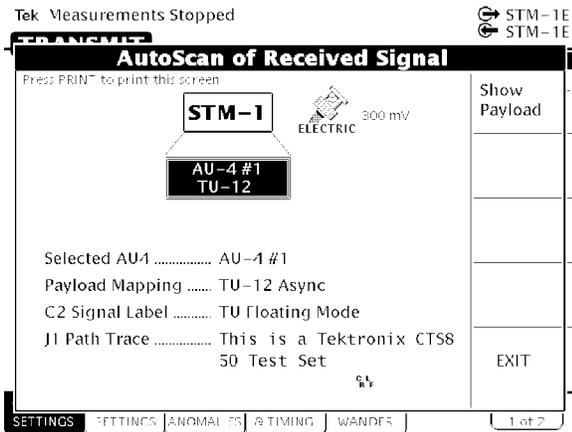
Figure 3 22: The AUTOSCAN Dialog Box Showing Signal Structure

Viewing the Payload

If the received signal uses tributary mapping, then Autoscan can display the different tributaries within the AU.

To display the tributary payload, highlight an AU-4 where TU12 or TU3 is shown as the mapping and select the **Show Payload** choice (see Figure 3 23).

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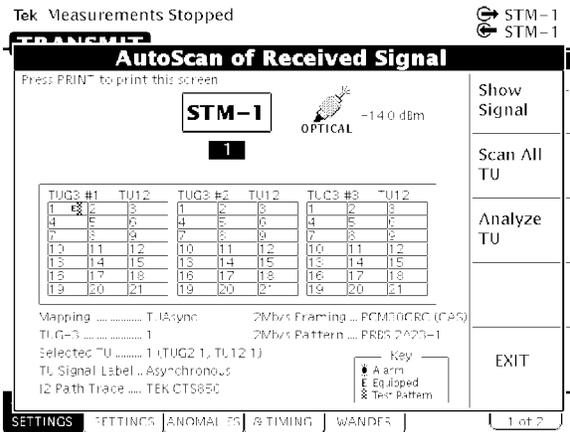
Figure 3 23: Viewing Tributary Signal Structure

Determining the Payload Pattern and Framing

To search for a pattern in the data of the received signal or determine the framing, select **Analyze TU**. After you select Analyze TU, the CTS850 scans the selected TU in the received signal to see if it there is a pattern within the data and if the signal is framed. If a pattern is found, it is displayed below the payload map on the Pattern line (for example, PRBS 2^23 1). If the CTS850 is unable to find a pattern within the signal, it displays Unknown on the Pattern line. The CTS850 will display the specific framing in use, on the Framing line.

To scan every TU in the received signal, select **Scan All TUs**. As the CTS850 scans the signal, it will indicate for each TU whether it has detected an alarm, whether the TU is equipped, and whether a test pattern was found in the TU. The key which describes each of the indicators is located in the lower right corner of the AutoScan dialog box (see Figures 3 23 and 3 24).

This shows that an alarm was
detected in the TU.

⚫ Alarm
E Equipped
▓ Test Pattern

This means the TU is equipped. That is,
the signal label (in the V5 byte) is not zero,
indicating that the TU is probably carrying
traffic.

This means the transmitted test
pattern was found in the TU.
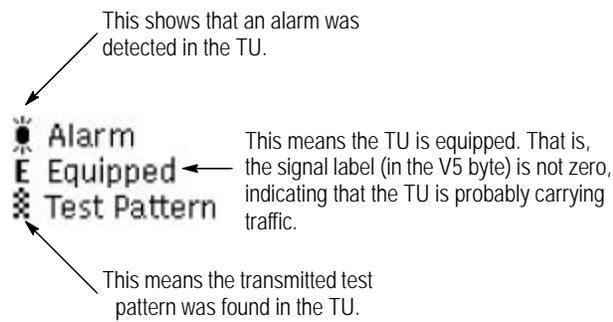
Figure 3 24: The Meaning of the Icons in the Autoscan Dialog Box

You exit the AUTOSCAN dialog box by selecting **EXIT**. When you
exit the AUTOSCAN dialog box, the receiver settings are set to
match the active channel most recently selected.

Printing the AutoScan Dialog Box

You can print the AutoScan dialog box by pressing the PRINT button
on the upper right of the front panel. This prints the displayed dialog
box using the settings on the PRINTER SETUP page of the
UTILITY menu. The printout takes about two minutes.

Viewing the Signal State

Three colors are used to indicate signal state: green, red, and yellow
(see Figure 3 25).
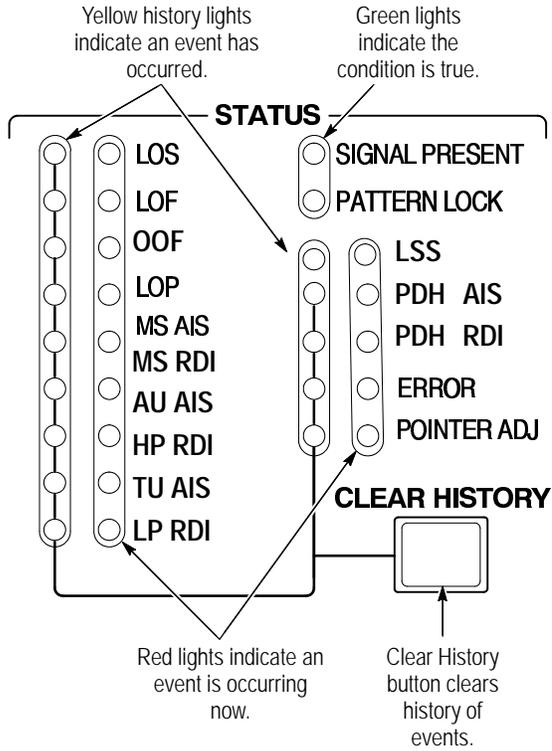
Figure 3 25: Front-Panel Status Lights

H   Green lights indicate the condition is true. See Table 3 5.

Table 3 5: Green Status Lights

Label on Light	Meaning if Light is On
SIGNAL PRESENT	A signal at the line rate specified by the Receive Rate parameter is present.
PATTERN LOCK	Lock to a PRBS or fixed pattern has been achieved.

H   Red lights indicate the associated condition is valid. For example,
if the red light next to LOS is on, no signal is being received. See
Table 3 6.

H   A yellow light is associated with each red light. The yellow lights
are turned on when an error, alarm, or failure condition first
occurs and then stay on to indicate the history even if the
condition goes away (see Table 3 6). Press the **CLEAR
HISTORY** button to clear the status history.

Table 3 6: Red and Yellow Status Lights

Label on Light	Meaning if Light is On
LOS	Loss of received signal.
LOF	Loss of frame of received signal.
OOF	Out of Frame signal.
LOP	Loss of AU or TU pointer for selected channel in received signal.
MS AIS	A multiplex section alarm indication signal is being received.
MS RDI	A multiplex section far end receive failure code is being received.
AU AIS	A path alarm indication signal is being received.
HP RDI	A path far end receive failure signal is being received.
TU AIS	A tributary alarm indication signal is being received.
LP RDI	A tributary far end receive failure is being received.
LSS	Loss of Synchronization Signal
PDH AIS	A tributary alarm indication signal is being received.
PDH RAI	A tributary remote alarm indication is being received.
ERROR	A bit, regenerator section, multiplex section, path, or TU parity error is detected; or a MS, path, or TU FEBE is being received.
POINTER ADJ	A pointer adjustment is being received.

Extended Status

The red-yellow pair of ERROR lights on the front panel turn on when a variety of error conditions exist on the line. For more detail about the specific error types and frequency of occurrence, see the TEST SUMMARY, MAIN RESULTS, and ERROR ANALYSIS pages of the RESULTS menu.

Setting the Beeper

You can set a beeper to sound every time a red status light turns on.

To enable or disable the beeper:

Press Menu Button	Select Menu Page	Highlight Parameter	Select Choice
UTILITY	MISC SETTINGS	Beeper	On
			Off

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